

In several respects this comet is very remarkable; and it may afford room for speculation regarding its identity with the lost comet of 1770. The orbit resembles more nearly the elliptical orbits of the planets than those of the periodic comets yet known. In its aphelion and perihelion it approaches nearly the orbits of Jupiter and Mars; and it must occasionally experience great perturbations from the former. It also passes within comparatively small distances of the orbits of the minor planets.

I have to-day received Professor Schumacher's circular, dated the 5th instant, communicating Dr. Goldschmidt's elements, which are nearly the same as mine. They may be considered as confirming each other.

I obtained an observation of the comet on December 25. Another on December 20 is not yet reduced, the star of comparison being undetermined.

| Mean time at Edinburgh.   | R.A.     | Declination. |
|---------------------------|----------|--------------|
| h m s                     | h m s    | ° ' "        |
| December 25..... 11 31 58 | 5 10 4.6 | + 3 ° 1' 42" |

*Edinburgh, January 10, 1844.*

#### V. A Letter from Professor Henderson announcing an additional Observation of the Comet of Faye.

*"Edinburgh, January 10, 1844.*

"This evening the comet was barely visible in my telescope, a 5-feet achromatic, with an object-glass of 3.6 inches. It was seen only at times, according to the varying clearness of the sky. At 9<sup>h</sup> 44<sup>m</sup> 24<sup>s</sup> the right ascension was 5<sup>h</sup> 8<sup>m</sup> 28.1<sup>s</sup>; the declination estimated + 3° 29'. The right ascension observed exceeds that deduced from the ephemeris by 16 seconds of time.

"T. HENDERSON."

#### VI. Elements of the Comet of Faye, computed by J. C. Adams, Esq. of St. John's College, Cambridge. Communicated by Professor Challis.

The observations used were made with the Northumberland Telescope of the Cambridge Observatory; and the deduced places are as follows:

| Greenwich Mean Solar Time. | Apparent R. A. of Comet. | Apparent N. P. D. of Comet. |
|----------------------------|--------------------------|-----------------------------|
| h m s                      | h m s                    | ° ' "                       |
| Nov. 29, 11 12 23          | 5 21 37.5                | 84 24 55"                   |
| Dec. 8, 9 59 18            | 5 17 28.7                | 85 47 53                    |
| 16, 11 55 45               | 5 13 33.0                | 86 35 55                    |

Mr. Adams had previously computed the orbit by the method of Olbers, on the supposition of its being a parabola, but he found that the middle observation was so badly represented, that this

hypothesis could not be correct. He then proceeded to determine the elements without making any hypothesis as to the conic section, and the resulting elements are as follows :

Perihelion passage, 1843, October 26<sup>d</sup>.33 Greenwich mean time.

|  |             |                                |
|--|-------------|--------------------------------|
| Longitude of Perihelion on the Orbit ..... | 54° 27' 8"  | From the equinox<br>of Dec. 5. |
| Longitude of ascending Node ...            | 207° 38' 0" |                                |
| Inclination to the Ecliptic .....          | 10° 48' 9"  |                                |
| Perihelion Distance .....                  | 1° 68' 7"   |                                |
| Semi-axis Major .....                      | 3° 44' 4"   |                                |
| Eccentricity .....                         | 0° 51' 0"   |                                |
| Periodic Time .....                        | 6.39        | Sidereal years.                |
|  |             | Motion direct.                 |

The author suggests that the comet may, perhaps, not have been moving long in its present orbit, and that, as in the case of the comet of 1770, we are indebted to the action of *Jupiter* for its present apparition. In fact, supposing the above elements to be correct, the aphelion distance is very nearly equal to the distance of *Jupiter* from the sun : also the time of the comet's being in aphelion was  $1843.8 - 3.2 = 1840.6$ , at which time its heliocentric longitude was  $234^{\circ}.5$  nearly, and the longitude of *Jupiter* was  $231^{\circ}.5$  ; and, therefore, since the inclination to the plane of *Jupiter's* orbit is also small, the comet must have been very near *Jupiter* when in aphelion, and must have suffered very great perturbations, which may have materially changed the nature of its orbit.

VII. Observations of the Comet of Faye. By C. Rumker, Esq.  
Communicated by Dr. Lee.

| Day, 1843. | Mean Time<br>at Hamburg. | App. Right Asc.<br>of the Comet. | App. N. Dec. of<br>the Comet. | Number of<br>Observations. |
|------------|--------------------------|----------------------------------|-------------------------------|----------------------------|
| Dec. 1     | 10 33 46.0               | 80° 11' 55" 78                   | 5° 14' 44" 4                  | 14                         |
|            | 12 39 53.3               |                                  | 5° 13' 52" 2                  | 10                         |
|            | 10 41 9.4                | 79° 14' 42" 89                   | 4° 4' 39" 1                   | Merid. Circle.             |
|            | 12 4 46.2                |                                  | 4° 4' 30" 6                   | Merid. Circle.             |
|            | 9 52 15.2                | 79° 7 18.72                      | 3° 58' 8" 2                   | 22                         |
|            | 9 51 5.1                 | 79° 0' 7.74                      | 3° 51' 37" 2                  | 17                         |
|            | 8 30 46.5                | 78° 45' 45" 10                   | 3° 39' 56" 7                  | 12                         |
|            | 11 45 26.0               | 78° 30' 22" 45                   | 3° 29' 11" 2                  | 11                         |
|            | 12 17 58.0               |                                  | 3° 28' 40" 8                  | Merid. Circle.             |
|            | 8 4 49.6                 | 78° 18' 3.67                     | 3° 20' 42" 1                  | 17                         |

VIII. Observations of the Comet of Faye, made at Starfield.  
By W. Lassell, Esq.

The author thinks that the observations given may be relied upon to within one second of time, and eight or ten seconds of declina-

tion. They were made with the 9-feet equatoreal, used differentially, comparing the place of the comet with the stars 23 and 30 *Orionis*, and one or two small stars near them.

The following are the resulting places:—

| Mean Time of Observation. | Apparent Right Ascension. | Apparent Declination. |
|---------------------------|---------------------------|-----------------------|
| 1843 Dec. 12 9 57         | 5 15 29.1                 | + 3 44 46.4           |
| 13 10 30                  | 5 14 59.7                 | 3 39 1.6              |
| 14 10 58                  | 5 14 30.7                 | 3 33 38.0             |
| 22 10 38                  | 5 10 56.0                 | 3 5 25.0              |

#### IX. The following Communications respecting the great Comet of 1843:—

##### 1. Observations of the Comet, made by J. Burdwood, Esq., Master of H. M. Sloop Persian. Communicated by G. B. Airy, Esq.

The comet was seen very distinctly for several successive evenings in March, while the vessel was cruising off the western coast of Africa, between  $0^{\circ} 40'$  east, and  $0^{\circ} 13'$  west longitude; and between  $5^{\circ} 10'$  and  $5^{\circ} 30'$  north latitude. The following distances were observed with the sextant on the evening of March 7, at  $7^{\text{h}} 10^{\text{m}}$  P.M.:—

|                               |                  |
|-------------------------------|------------------|
| Distance from Aldebaran ..... | $60^{\circ} 29'$ |
| — Canopus .....               | $75^{\circ} 57'$ |
| — Sirius .....                | $84^{\circ}$     |
| Length of Tail .....          | $27^{\circ} 25'$ |

##### 2. Remarks on the Comet, as seen on Board the Lawrence, of Liverpool, on her passage from Sidney to Conception. By a Passenger. Communicated by W. Simms, Esq.

The comet was first seen on the 1st of March, at  $8\frac{1}{2}$  P.M., as a white streak of light, inclined at an angle of  $40^{\circ}$  to the horizon, and was imagined to be the zodiacal light. It was again seen on the 6th, when the tail was  $50^{\circ}$  in length, in two streams of light, the outside edges being clear and well defined. On the 9th, the nucleus was seen, and appeared as bright as stars of the third or fourth magnitude. It was seen at intervals till the 28th of March.

##### 3. Abstract of an Article in *Silliman's Journal*, containing an Account of Observations of the great Comet, made near the time of its Perihelion Passage. By J. G. Clarke, Esq., of Portland.

Mr. Clarke measured the distance of the nucleus from the sun on the 28th of February, and states, that the nucleus and every part of the tail, as seen by him in strong sunshine, were as well defined as the moon on a clear day, and resembled a perfectly pure